#include<stdio.h>

#include<conio.h>

void main()

{

int k=0,output[10],d=0,t=0,ins[5],i,avail[5],allocated[10][5],need[10][5],MAX[10][5],pno,P[10],j,rz, count=0;

clrscr();

printf("\n Enter the number of resources : ");

scanf("%d", &rz);

printf("\n enter the max instances of each resources\n");

for(i=0;i<rz;i++)

{ avail[i]=0;

printf("%c= ",(i+97));

scanf("%d",&ins[i]);

}

printf("\n Enter the number of processes : ");

scanf("%d", &pno);

printf("\n Enter the allocation matrix \n ");

for(i=0;i<rz;i++)

printf(" %c",(i+97));

printf("\n");

for(i=0;i <pno;i++)

{ P[i]=i;

printf("P[%d] ",P[i]);

for(j=0;j<rz;j++)

{

scanf("%d",&allocated[i][j]);

avail[j]+=allocated[i][j];

}

}

printf("\nEnter the MAX matrix \n ");

for(i=0;i<rz;i++)

{ printf(" %c",(i+97));

avail[i]=ins[i]-avail[i];

}

printf("\n");

for(i=0;i <pno;i++)

{

printf("P[%d] ",i);

for(j=0;j<rz;j++)

scanf("%d", &MAX[i][j]);

}

printf("\n");

A: d=-1;

for(i=0;i <pno;i++)

{ count=0; t=P[i];

for(j=0;j<rz;j++)

{

need[t][j] = MAX[t][j]-allocated[t][j];

if(need[t][j]<=avail[j])

count++;

}

if(count==rz)

{

output[k++]=P[i];

for(j=0;j<rz;j++)

avail[j]+=allocated[t][j];

}

else

P[++d]=P[i];

}

if(d!=-1)

{ pno=d+1;

goto A;

}

printf("\t <");

for(i=0;i<k;i++)

printf(" P[%d] ",output[i]);

printf(">");

getch();

}